



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, WA 98115

Refer to:  
OSB2000-0019

February 14, 2000

Fred Patron  
Federal Highway Administration  
The Equitable Center, Suite 100  
530 Center Street NE  
Salem, OR 97301

Re: Biological Opinion for the Cottage Street Bridge Replacement Project

Dear Mr. Patron:

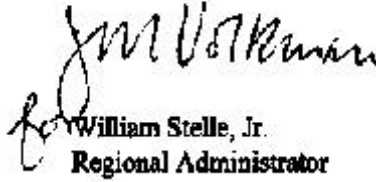
The National Marine Fisheries Service (NMFS) has enclosed the Biological Opinion (Opinion) that addresses your proposed project to replace the Cottage Street Bridge in the City of Medford, Jackson County, Oregon. NMFS received the Biological Assessment (BA) and request for consultation on December 10, 1999. The Federal Highway Administration (FHWA) is the lead action agency. Oregon Department of Transportation is the designer for the project, and will administer the construction contract. The City of Medford owns the bridge.

This Opinion considers the potential effects of the project on southern Oregon/northern California coho salmon (*Oncorhynchus kisutch*) which occur in the proposed project area. southern Oregon/northern California coastal coho salmon were listed as threatened under the Endangered Species Act on May 6, 1997 (62 FR 24588), and critical habitat has been designated (64 FR 240490). This opinion constitutes formal consultation for the southern Oregon/northern California coho salmon. The NMFS concludes that the proposed action is not likely to jeopardize the subject species or destroy or adversely modify proposed critical habitat. Included in the enclosed Opinion is an incidental take statement with terms and conditions to minimize the take of the subject species.



If you have any questions regarding this letter, please contact Nancy Munn in the Oregon State Branch Office at (503) 231-6269.

Sincerely,



William Stelle, Jr.  
Regional Administrator

cc: Rose Owens - ODOT  
Greg Apke - ODOT (attachment)  
Max Mizejewski - ODOT (attachment)  
Frank Stevens - ODOT Solution Team Leader (attachment)  
Julie Bunnell - ODOT Permit Liaison (attachment)  
Randy Reeve - ODFW (attachment)  
Army Corps of Engineers (attachment)  
Oregon Division of State Lands

Endangered Species Act - Section 7  
Consultation

BIOLOGICAL OPINION

Cottage Street Bridge Replacement  
Bear Creek, City of Medford  
Jackson County

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,  
Northwest Region

Date Issued: February 14, 2000

**Refer to:** OSB2000-0019

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## **I. BACKGROUND**

On December 10, 1999, the National Marine Fisheries Service (NMFS) received a Biological Assessment (BA) and request from Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for a bridge replacement project over Bear Creek in the City of Medford, Jackson County, Oregon. The bridge is located at Cottage Street, and is called the Cottage Street Bridge. The FWHA is the lead agency. The Oregon Department of Transportation (ODOT) has designed the project and will administer the construction contract. The City of Medford owns the bridge. FWHA/ODOT has determined that the southern Oregon/northern California coho salmon (*Oncorhynchus kisutch*) (SONC coho) may occur within the project area. This Biological Opinion (Opinion) is based on the information presented in the BA and the result of the consultation process.

FWHA/ODOT is proposing to replace the existing bridge and build a wider bridge along the same alignment. The January 1997 flood scoured the in-water support structures of the existing bridge, making the bridge structurally deficient. The new structure will be a 49-foot wide concrete bridge, with one bridge bent required below the two-year floodplain elevation. A temporary work bridge will not be needed. Approximately 85 linear feet of streambank will be covered by riprap.

The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). FWHA/ ODOT determined that the proposed action was likely to adversely affect the SONC coho.

This Opinion reflects the results of the consultation process. The consultation process has involved correspondence and communications to obtain additional information and clarify the BA. As appropriate, modifications to the proposal to reduce impacts to the indicated species were discussed and enacted. This has included significantly reducing the amount of riprap proposed and adding a comprehensive riparian mitigation-planting plan and in-stream habitat enhancement.

The objective of this Opinion is to determine whether the action to replace the Cottage Street Bridge is likely to jeopardize the continued existence of the SONC coho or destroy or adversely modify critical habitat.

## **II. PROPOSED ACTION**

The proposed action will replace the existing bridge, which has become structurally weakened due to scour around the in-water support structures. The new bridge will consist of the four travel lanes, shoulders, and sidewalks on each side for a total width of 49 feet.

The new bridge will be a two-span prestressed concrete boxbeam bridge with a cast-in-place deck. The total length will be 180 feet. The first span of the bridge is maximized in length to pull the middle bent out of the stream as much as possible.

The bridge foundation will consist of a drilled shaft foundation. The middle bent (bent 2) will be located within the two-year floodplain. Work on this bent will be isolated from the water by the use of a cofferdam or other method approved by ODOT.

Construction of new abutments will begin after the removal of the old bridge and abutments. Five 3-foot diameter, 33-foot deep shafts will be drilled at each of the three bents. Concrete will be poured into each drilled shaft to form the bridge foundation. Abutment walls will then be excavated and constructed. Crossbeams will be placed across the tops of the drilled shaft columns. Atop the crossbeams, the box beams will be installed. Then the sidewalks and deck will be poured in place followed by installation of the guardrails.

### **Bridge Dismantling**

This activity will begin with the removal of guardrails, followed by removal of the bridge deck. The bridge deck will be cut into pieces and either craned off or lifted out with a trackhoe. The middle bent will be lifted out whole, if possible, or cut into manageable pieces and lifted out. The old footings will require some excavation in order to remove them from the stream bank.

### **Riprap Placement**

The north side of Bear Creek is heavily scoured. Bank armoring will be necessary to protect the bridge from possible scour. A toe-trench will be excavated in the north side of the channel and class 1000 metric riprap will line the bank up to the new bikepath elevation of 1,356 feet. Riprap will extend a maximum of 16 feet upstream and downstream of the new bridge; total length of the riprap will be a maximum of 85 feet. Excavation and backfilling of the toe-trench will require in-water work (approximately 2 days). Prevention of sediment release into downstream areas of Bear Creek is a primary concern during this activity. A cofferdam or similar device (water-filled bladders, sandbags, and plastic sheathing, or other ODOT approved methods) will be used to isolate the work area from the water. No riprap will be used at the south abutment of the bridge.

### **Staging**

A staging area has not been selected at this time. However, the contractor will likely choose an area at the north end of the bridge, inside the road closure area. All staging activity, including fuel storage and transfers, will occur at least 300 feet from the active channel.

## **Habitat Enhancement**

The proposed action includes two types of habitat enhancement activities.

1. FHWA/City of Medford has acquired a 13,064 ft<sup>2</sup> permanent and maintenance planting easement located immediately upstream of the new bridge; it extends approximately 295 feet along the south shore of Bear Creek. Additionally, there are two more permanent easements located on the south side of the new bridge that will be used for plantings. These two easements are the old riprap footprint easements and will have rock removed. These are 312 and 688 ft<sup>2</sup> in size.

Plantings in the Medford area have a history of not succeeding, most likely due to lack of water during the establishment period. ODOT, in a cooperative effort with the City of Medford, has hired a landscape architectural consultant to develop and assist the city in the implementation of a comprehensive planting plan. The purpose of this plan is to create local ownership and responsibility for the success of the plants.

Components of the planting plan include:

- a. Soil tests to determine soil content, limiting factors and proper soil enhancement if necessary.
- b. Removal of exotic plant species including Himalayan blackberry and reed canary grass.
- c. Establishment of vegetation along the channel and banks including the extensive use of willow cutting obtained locally. Cuttings will be planted at and near the water surface elevation along the entire easement. Other native species in the lower elevation areas would include red-osier dogwood, ninebark, rushes and sedges. Floodplain plantings would include black cottonwood, red and white alder, Oregon ash, bigleaf maple and native rose species.
- d. Removal of local stream bank debris along the easements.
- e. Irrigation of the plantings during the summer and fall months.
- f. A 3-year establishment period for the plantings with 80% survival.

FHWA/ODOT has allocated \$12,000 for the implementation of the planting plan. This does not include the development of the plan. Short and long-term objectives of the plantings include: To enhance locally degraded riparian zones along Bear Creek, provide vegetation to improve soil and bank stability to these degraded areas; promote fish habitat such as cover, refugia, foraging, and woody debris recruitment; enhance riparian function and floodplain connectivity; and promote shade along Bear Creek for the short and long term.

2. The action also includes in-stream habitat enhancement. A series of boulder clusters has been added to the design to provide in-stream habitat diversity along the toe of the revetment.

Six boulder clusters are proposed and will be spaced at an interval of 16 feet along the riprap revetment. The clusters may provide a refugia from flow for adult and juvenile salmonids. Boulders clusters will be comprised of 3.3-foot diameter rocks.

### **III. BIOLOGICAL INFORMATION AND CRITICAL HABITAT**

The southern Oregon/northern California (SONC) coho salmon Evolutionarily Significant Unit (ESU) was listed as threatened under the ESA by the NMFS on May 6, 1997 (62 FR 24588). Biological information on SONC coho salmon may be found in Weitkamp et al. (1995). Critical habitat was designated for the SONC coho salmon on May 5, 1999 (64 FR 24049). Critical habitat for SONC coho salmon consists of all waterways below naturally impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

### **IV. EVALUATING PROPOSED ACTIONS**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery.



If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent measures available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration and rearing of the SONC coho salmon under the existing environmental baseline.

## **A. Biological Requirements**

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list SONC coho for ESA protection and also considers new data available that is relevant to the determination (Weitkamp 1995).

The relevant biological requirements are those necessary for SONC coho salmon to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful juvenile and adult migration, holding, and rearing. The current status of the SONC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

## **B. Environmental Baseline**

The current range-wide status of the identified ESU may be found in Weitkamp et al. (1995). The identified action will occur within the range of SONC coho salmon. The defined action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term.

For the purposes of this opinion, the action area is defined as the streambed and streambank of Bear Creek within the area of disturbance including all habitat enhancement sites. Other areas of the Bear Creek basin are not expected to be directly or indirectly impacted.

The existing bridge is located in the Bear Creek basin. Bear Creek flows northwest 51 miles from its headwaters in Emigrant Creek, through the cities of Ashland and Medford, to its mouth on the Rogue River. The action area is 10 miles upstream of the mouth. There are 83 identified tributaries to Bear Creek, 13 of which are considered fish-bearing. The Bear Creek basin drains approximately 384 square miles.

Bear Creek is located in a wide valley constructed from glacio-fluvial deposition. The channel gradient is less than 2 percent, and it has a riffle/run bedform morphology. Due to its proximity to Interstate 5 and other urban features, the stream is generally confined to a narrow meander zone. Channel morphology of Bear Creek has been greatly altered by development including channelization and levee construction.

The Bear Creek basin is water deficient, primarily due to the seasonal pattern of rainfall, and the demand for surface water by urban users and irrigation. Municipal water for urban areas in the Bear Creek valley is collected from the Ashland Creek watershed, imported from Big Butte Springs and pumped from the Rogue River, just upstream from its confluence with Bear Creek. Surplus flows and discharges from the municipal watersheds are released into Bear Creek at various locations and do supplement base flows. There are six reservoirs in use in the Bear Creek basin. In addition, there are temporary push-up dams constructed during the irrigation season.

Bear Creek is on the Oregon Department of Environmental Quality (DEQ) 303(d) list of water quality limited streams for flow modification, habitat modification, summer temperatures, and fecal coliform levels. Other parameters exceeding water quality standards for Total Maximum Daily Loads include phosphorus, biological oxygen demand, dissolved oxygen, ammonia, sediment and pH.

In lower Bear Creek, temperature, sedimentation and a lack of appropriately sized spawning gravel are three of many factors limiting the use of lower Bear Creek by anadromous fish. Sediment accumulates from land use activities and natural erosion higher in the basin. Ashland Creek and the upper west-side tributaries experience significant erosion problems due to the highly erodible granitic and metamorphosed sedimentary rocks that make up the soils. Urban runoff, road, and creek maintenance and gravel removal operations contribute additional sediment to Bear Creek. Stream channel complexity has been greatly reduced with the loss of sloughs, oxbows, marshes, wetlands, natural meanders, side channels, undercut banks, and in-stream large wood and boulders.

Based on field work in the early 1990s, high water temperature is likely the most important factor limiting salmon production in Bear Creek (Dambacher et al. 1992). This work measured temperatures in lower Bear Creek approaching 80°F, and even exceeding this value in some tributaries.

The habitat within the action area is characterized by a confined stream channel bordered on both sides by urban commercial and residential development. There is evidence of past stream filling under the southern end of the Cottage Street Bridge. The stream channel is composed primarily of cobble and gravel substrates with local concentrations of small boulders creating some refuge habitat. Fine sediment has cemented the cobble and gravel to an extent that it would not likely be usable spawning habitat. Riparian cover along lower Bear Creek is of marginal value, providing shade over approximately 30 percent of the stream from the mouth to river mile 15, and considerably less in the vicinity of the action area. Much of the shade-producing riparian vegetation along the stream has been removed. Non-native species such as Himalayan blackberry have displaced much of the native shade-producing vegetation.

There is very little large wood in the stream channel in the action area. Also, there is little opportunity for recruitment of woody material into the stream channel. Stream complexity has diminished with urban development. There is limited in-stream cover or refugia in the action area. As a consequence, the lower reaches of Bear Creek including the action area serves mainly as a migration corridor for spawning adults and outmigrating juveniles. Some juvenile rearing may occur within the reach when stream temperatures are tolerable.

Coho salmon were historically abundant in Bear Creek. However, according to a 1970 ODFW stream habitat inventory, about 60 coho used Bear Creek for spawning and rearing. It is now believed that coho present in Bear Creek are merely strays from neighboring rivers. The first 10 miles of Bear Creek, including the action area, function as a migration corridor, providing passage to spawning and rearing areas above the Jackson Street Dam. Presently, coho spawning occurs primarily in Ashland Creek. Under natural conditions, where stream temperatures are within the tolerable range for coho salmon, juveniles would be present in natal streams, including Bear Creek, throughout the year. However, because temperatures in Bear Creek and many of its tributaries approach and often exceed lethal levels during the summer months, it is very unlikely that juvenile coho are present in Bear Creek in the vicinity of the project during the ODFW in-water work period of June 15<sup>th</sup> to September 15<sup>th</sup>.

Based on the best available information on the current status of SONC coho salmon range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area (as described in the BA), NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. There are survey data available for coho salmon in this region. Numbers of SONC coho salmon are substantially below historic numbers, with current production largely outside of the Bear Creek basin. Long-term trends are decreasing. Recent droughts and change in ocean production have probably reduced run sizes. River basins have degraded habitats resulting from agricultural and forestry practices, water diversions, urbanization, mining, and severe recent flooding.

The following habitat indicators are either at risk or not properly functioning the lower Bear Creek: Summer water temperatures, turbidity/sediment, chemical contamination, physical barriers, substrate, large wood, pool frequency and quality, off-channel habitat, refugia, channel condition and dynamics, flow/hydrology, and watershed conditions. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of SONC coho salmon.

## V. ANALYSIS OF EFFECTS

### A. Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of actions are expressed in terms of the expected effect – restore, maintain, or degrade – on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to SONC coho salmon or critical habitat:

1. In-water work will be needed to place the middle bridge bent in Bear Creek. Sediment will be entrained in the water column during the in-water construction of the bent. Larger juvenile and adult salmon appear to be little affected by ephemerally high concentrations of suspended sediments that occur during most storms and episodes of snow melt. However, other research demonstrates that feeding and territorial behavior can be disrupted by short-term exposure to turbid water. Localized increases of turbidity during bent construction of the new bridge and the removal of existing bents will likely displace coho salmon in the project area and disrupt normal behavior. The effects are expected to be temporary and localized. Additionally, high water temperatures in Bear Creek during the in-water work period (June 15 to September 15) would likely preclude coho salmon from being in the action area while these activities are occurring.
2. Removal of the existing bents on the streambank should not require in-water work.
3. Although the superstructure of the bridge will be pre-cast, some wet concrete will be used. When wet concrete comes in contact with water, the pH of the water changes, creating an acutely toxic situation for fish.
4. There will be temporary and permanent impacts to riverbed materials (primarily cobbles and gravels) as a result of this project. The construction of the middle bent of the new bridge and placement of riprap will result in the permanent loss of habitat. Approximately 2,592 ft<sup>2</sup> of in-stream habitat will be permanently impacted.
5. Riprap will be placed along the streambed up to the 8-year floodplain around the base of the north bent. The construction of the bridge bents and the placement of riprap will result in the loss of poor quality riparian habitat.

6. Staging activities may result in a spill of hazardous materials. In addition, operation of machinery on and near the bridge will increase the risk of a hazardous spill in the river.

The effects of these activities on SONC coho salmon and aquatic habitat factors have been limited by utilizing construction methods and approaches that are intended to avoid or minimize impacts. These include:

1. All in-water work will be conducted during the in-water work period of June 15<sup>th</sup> to September 15<sup>th</sup>. Adult coho salmon will not be migrating during that time period. It is unlikely that juvenile salmon would be rearing in the action area during the in-water work period because of very high water temperatures. Any juveniles rearing in the project area have the potential to be displaced or killed during the in-water work.
2. To minimize the potential for contact between wet cement and the river, all work in the water will be done within a coffer dam or a similar structure.
3. The cofferdam will also help to minimize the amount of sediment entrained in the river during in-water construction of the bent.
4. To minimize the impacts of riprap placement, the series of six boulder clusters are proposed for the toe of the revetment. These structures will increase habitat heterogeneity and increase the potential for habitat refugia.
5. An erosion control plan will be implemented that includes silt fences, sediment filters and routine monitoring. Implementation of erosion and sediment controls should be adequate to minimize sediment inputs into the river until vegetation regrowth occurs.
6. All vegetation removed will be replaced at a 3.5:1 ratio with native plant species.
7. Hazardous materials, including fuel, will not be stored or transferred within 300 feet of Bear Creek or any wetlands. No staging areas or parking areas will occur within 300 feet of any water body. This will reduce the likelihood of a spilled toxic substance reaching the river. Implementation of the Terms and Conditions within this Opinion will further reduce the risk of impacts to fish and Bear Creek.

The action also includes habitat restoration activities to mitigate for the in-water work and impacts to riparian habitat and water quality. FHWA/ODOT is working with the City of Medford to include a successful planting plan with this action. Riparian vegetation is very sparse along Bear Creek within the action area. Successful vegetation would improve many habitat parameters, and improve conditions for fish at the reach level.

For the proposed action, the NMFS expects that the effects will tend to maintain each of the habitat elements over the long term, greater than one year. However, in the short term, a temporary increase in sediment entrainment and turbidity, and disturbance of riparian habitat is expected. Fish may be killed, or more likely, temporarily displaced during the in-water work (construction of the bridge bent). The potential effects from the sum total of proposed actions including habitat enhancement activities are expected to restore the function of coho salmon habitat condition. At the reach level, the action may improve habitat conditions for coho salmon.

## **B. Effects on Critical Habitat**

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for SONC coho salmon consists of all waterways below naturally impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

The proposed actions will affect critical habitat. In the short term temporary increase of sediments and turbidity and disturbance of riparian habitat is expected. In the long term, a net loss of riverbed habitat will occur. However, according to ODFW, this reach of Bear Creek is not used for spawning by coho salmon primarily because of degraded water quality. The primary use is for migration. The loss of riverbed habitat is not expected to impact migration through the action area. Also, habitat complexity and riparian function may be increased by the proposed plantings and the boulder clusters. Consequently, NMFS does not expect that these actions will diminish the value of the habitat for survival of SONC coho salmon.

## **C. Cumulative Effects**

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as the streambed and streambank of Bear Creek within the area of disturbance and includes all habitat enhancement sites. A wide variety of actions occur within the watersheds defined within the Opinion. NMFS is not aware of any significant change in such non-Federal activities that are reasonably certain to occur. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Each of these projects will be reviewed through separate section 7 consultation processes. Future FHWA/ODOT transportation projects are planned in the Bear Creek watershed.

## **VI. CONCLUSION**

NMFS has determined based on the available information, that the proposed actions are expected to maintain properly functioning stream habitat conditions within the action area, and improve conditions at the restoration site. Consequently, the proposed action covered in this Opinion are not likely to jeopardize the continued existence of southern Oregon/northern California coho salmon. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to

the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment impacts, in-water construction, and habitat loss. These effects will be balanced in the long-term through the proposed mitigation. Direct mortality from this project may occur during the in-water work.

## **VIII. CONSERVATION RECOMMENDATIONS**

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. In addition to those general minimization and avoidance measures as described in the biological assessment, the NMFS requests monitoring of the restoration site to determine whether salmonids use the site.

In order for NMFS to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed species or their habitat, NMFS requests notification of the implementation of any conservation recommendations.

## **IX. REINITIATION OF CONSULTATION**

Consultation must be reinitiated if: The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To re-initiate consultation, ODOT must contact the Habitat Conservation Division (Oregon Branch Office) of NMFS.

## **X. REFERENCES**

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion.

Dambacher, J., R. Frick, and E. Dittmer. 1992. Bear Creek Habitat and Temperature Study, 1990-91. A cooperative study from Oregon Department of Fish and Wildlife, Rogue River National Forest, and Rogue Valley Council of Governments.

DEQ 1996. 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, Or. 1996. ([www.deq.state.or.us/wq/303dlist/303dpage.htm](http://www.deq.state.or.us/wq/303dlist/303dpage.htm)).

DEQ 1998. Draft 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, Or. 1998. ([www.deq.state.or.us/wq/303dlist/303dpage.htm](http://www.deq.state.or.us/wq/303dlist/303dpage.htm)).

DSL 1996. Essential Indigenous Salmonid Habitat, Designated Areas, (OAR 141-102-030). Oregon Division of State Lands. Portland, Or. 1996.

NMFS (National Marine Fisheries Service) 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon.

ODFW 1996. Database -- Salmonid Distribution and Habitat Utilization, Arc/Info GIS coverages. Portland, Or. 1996. ([rainbow.dfw.state.or.us/ftp/](http://rainbow.dfw.state.or.us/ftp/)).

Weitkamp, L.A., T.C. Wainwright, G.J. Brant, G.B. Miller, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status Review of Coho Salmon from Washington, Oregon, and California. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-NFWWC-24, 258 p.

## **XI. INCIDENTAL TAKE STATEMENT**

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.



An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

#### **A. Amount or Extent of the Take**

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of SONC coho salmon because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on coho salmon habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the biological report, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to within the area of project disturbance.

#### **B. Reasonable and Prudent Measures**

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimizing take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. To minimize the amount and extent of incidental take from construction activities within Bear Creek, measures shall be taken to limit the duration and extent of in-water work, and to time such work when the impacts to fish are minimized.
2. To minimize the amount and extent of incidental take from construction activities in or near the river, effective erosion and pollution control measures shall be developed and implemented. The measures shall minimize the movement of soils and sediment both into and within the river, and will stabilize bare soil over both the short term and long term.
3. To minimize the amount and extent of take from loss of in-stream habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian and in-stream habitat, or where impacts are unavoidable, to replace lost riparian and in-stream function.

4. To ensure effectiveness of implementation of the reasonable and prudent measures, all erosion control measures shall be monitored and evaluated both during and following construction and meet criteria as described below in the terms and conditions.

### **C. Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the ESA, ODOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. In-water work:
  - a. Passage shall be provided for both adult and juvenile forms of all salmonid species throughout the construction period. FHWA/ODOT designs will ensure passage of fishes as per ORS 498.268 and ORS 509.605.
  - b. All work within the active channel of all anadromous fish-bearing systems, or in systems which could potentially contribute sediment or toxicants to downstream fish-bearing systems, will be completed within ODFW's in-water work period (June 15<sup>th</sup> to September 15<sup>th</sup>). An extension of the in-water work period will first be approved by and coordinated with ODFW and NMFS.
  - c. All in-water work will be done within a cofferdam or similar structure to minimize the potential for sediment entrainment. During all in-water work, appropriate containment devices such as water-filled bladders, sand bags, or a floating boom with filter fabric will be used to prevent the release of sediment to downstream portions of Bear Creek. If a containment device is to be used, sediment-laden water will be pumped into a settling basin until sediment is removed or it may be pumped into tank trucks and hauled away. The pump intake will be equipped with a 3/32-inch screen to prevent entrainment of fish.
  - d. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration.
  - e. During ODOT project design, ODOT will work to minimize the amount of riprap used. In unshaded areas above the 5-year floodplain which are not scour-critical, ODOT will attempt to use biological bank control, or to backfill with native soil and plant with

willow and other riparian species. This installation will increase riparian shading and cover. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term bank armoring will be employed. In areas with riprap installation, larger riprap (class 350 metric minimum) will be used preferentially within the 2-year floodplain of systems, where this riprap would come into contact with actively flowing water, and where using larger riprap would not constrict the size of the active channel (larger rock sizes create larger interstitial spaces for juvenile salmonids). Placement will be performed "in the dry" as much as possible, and from the top of the bank where possible. Riprap areas will be planted with willow stakes (and other riparian shrubs/ trees) to increase shading and cover within the 10-year floodplain, where appropriate. Willow stakings will be of a species appropriate for the physiographic province and will be planted at an approximate density of 2000/ ha (generally).

## 2. Erosion and Pollution Control

An Erosion Control Plan (ECP) will be prepared by ODOT or the contractor and implemented by the Contractor. The ECP will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures will be sufficient to ensure compliance with applicable water quality standards. The ECP shall be maintained on site and shall be available for review upon request.

- a. Erosion Control measures shall include (but not be limited to) the following:
  - i. The contractor will have the following on hand: 50 weed-free straw bales, 150 feet of unsupported silt fence, and 25 biobags.
  - ii. Temporary plastic sheeting for immediate protection of open areas (where seeding/ mulching are not appropriate), in accordance with ODOT's standard specifications.
  - iii. Erosion control blankets or heavy duty matting (e.g., jute) may be used on steep unstable slopes in conjunctions with seeding or prior to seeding.
  - iv. Sills or barriers may be placed in drainage ditches along cut slopes and on steep grades to trap sediment and prevent scouring of the ditches. The barriers will be constructed from rock and straw bales.
  - v. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work on exposed slopes.

- b. Effective erosion control measures shall be in-place at all times during the contract. Construction within the 5-year floodplain will not begin until all temporary erosion controls (e.g., straw bales, silt fences) are in-place, downslope of project activities within the riparian area. Erosion control structures will be maintained throughout the life of the contract.
- c. All temporarily-exposed areas will be seeded and mulched. Erosion control seeding and mulching, and placement of erosion control blankets and mats (if applicable) will be completed on all areas of bare soil within 7 days of exposure within 150 feet of waterways, wetlands or other sensitive areas, and in all areas during the wet season (after October 1). All other areas will be stabilized within 14 days of exposure. Efforts will be made to cover exposed areas as soon as possible after exposure.
- d. All erosion control devices will be inspected during construction to ensure that they are working adequately. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites. Work crews will be mobilized to make immediate repairs to the erosion controls, or to install erosion controls during working and off-hours. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional controls will be installed as necessary.
- e. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
- f. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 12 cm. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.
- g. Where feasible, sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters an aquatic resource area. Silt fences or other detention methods will be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
- h. A supply of erosion control materials (e.g., straw bales and clean straw mulch) will be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.

- i. All equipment that is used for instream work will be cleaned prior to entering the two-year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.
- j. On cut slopes steeper than 1:2 a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the rate.
- k. Material removed during excavation shall only be placed in locations where it cannot enter sensitive aquatic resources. Conservation of topsoil (removal, storage and reuse) will be employed.
- l. Measures will be taken to prevent construction debris from falling into any aquatic resource. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- m. Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and DEQ's provisions for maintenance of water quality standards not to be exceeded within the Rogue Basin (OAR Chapter 340, Division 41). Toxic substances shall not be introduced above natural background levels in waters of the state in amounts which may be harmful to aquatic life. Any turbidity caused by this project shall not exceed DEQ water quality standards.
- n. The Contractor will develop an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the ODOT Engineer to ensure compliance with this PCP. The PCP shall include the following:
  - i. A site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pit operations, haul roads, equipment storage sites, fueling operations and staging areas.
  - ii. Methods for confining and removing and disposing of excess concrete, cement and other mortars. Also identify measures for washout facilities.

- iii. A spill containment and control plan that includes: Notification procedures; specific containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.
- iv. Measures to be used to reduce and recycle hazardous and non-hazardous waste generated from the project, including the following: the types of materials, estimated quantity, storage methods, and disposal methods.
- v. The person identified as the Erosion and Pollutant Control Manager (EPCM) shall also be responsible for the management of the contractor's PCP.
- o. Areas for fuel storage, refueling and servicing of construction equipment and vehicles will be located at least 300 feet away from any waterbody. Overnight storage of vehicles must occur at least 300 feet away from Bear Creek.
- p. Hazmat booms will be installed in all aquatic systems where:
  - i. Significant in-water work will occur, or where significant work occurs within the 5-year floodplain of the system, or where sediment/toxicant spills are possible.
  - ii. The aquatic system can support a boom setup (i.e. the creek is large enough, low-moderate gradient ).
- q. Hazmat booms will be maintained on-site in locations where there is potential for a toxic spill into aquatic systems. "Diapering" of vehicles to catch any toxicants (oils, greases, brake fluid) will be mandated when the vehicles have any potential to contribute toxic materials into aquatic systems.
- r. No surface application of nitrogen fertilizer will be used within 50 feet of any aquatic resource.
- s. During the removal of the existing bents in the riparian area, the ODOT biologist will determine whether sediment containment measures are to be implemented prior to removal of the bents. The contractor will provide the ODOT biologist with a minimum of two days notice, prior to any excavation of the bents.

### 3. Riparian Habitat Protection Measures

- a. Boundaries of the clearing limits will be flagged by the project inspector. Ground will not be disturbed beyond the flagged boundary.
- b. Alteration of native vegetation will be minimized. Where possible, native vegetation will be clipped by hand so that roots are left intact. This will reduce erosion while still allowing room to work. No protection will be made of invasive exotic species (e.g. Himalayan blackberry)
- c. Riparian understory and overstory vegetation removed will have a replacement rate of at least 3.5:1. Replacement will occur within the project vicinity. Any disturbed riparian areas must be planted with trees and shrubs, at a minimum.
- d. FHWA/ODOT and the City of Medford will implement a \$12,000 planting plan that includes irrigation to ensure survival of the plantings. The plan will provide for a 3-year establishment period for the plantings with 80% survival.

### 4. Monitoring

- a. Erosion control measures as described above in 2(d) shall be monitored.
- b. All significant riparian replant areas will be monitored to insure the following:
  - i. Finished grade slopes and elevations will perform the appropriate role for which they were designed.
  - ii. Plantings are performing correctly and have an adequate success rate.
- c. Failed plantings and structures will be replaced, if replacement would potentially succeed. If not, plantings at another appropriate locations will be done.
- d. A contract grow period (3 year minimum) will be required for all riparian mitigation plantings. In extremely unstable or unproductive areas, ODOT may release the contractor from the contract grow period and develop a larger replanting area to compensate for this.

- e. By December 31 of the year following construction, FHWA/ODOT shall submit to NMFS (Oregon Branch) a monitoring report with the results of the monitoring required in terms and conditions (4(a) to 4(c) above), and results of the habitat restoration activities (3(d) above) of the above reasonable and prudent measures.